

REMARKS

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every features of the invention specified in the claims. The disclosure is objected to because of some mistake in specification. A new title is required that is clearly indicative of the invention to which the claims are directed. Claims 1, 2, 4-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002062528 to Okabe and further in view of U.S. Patent 5,629,785 to Valliath et al. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002062528 to Okabe and U.S. Patent 5,629,785 to Valliath et al. and further in view of applicant's admitted prior art. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002062528 to Okabe and U.S. Patent 5,629,785 to Valliath et al. and further in view of U.S. Patent 5,881,201 to Khanarian. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002062528 to Okabe and U.S. Patent 5,629,785 to Valliath et al. and further in view of U.S. Patent 5,881,201 to Khanarian.

1. Objection over drawings under 37 CFR 1.83(a):

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the region with greater diffusion effect closer to the luminous means in claim 1 must be shown or the feature(s) cancelled from the claim(s). The photo masks used for regions with different diffusion effects as claim 2 must be

shown or the feature(s) cancelled from the claim(s). The region closer to the luminous means composed of smaller liquid crystal droplets as claimed in claim 3 must be shown or the feature(s) cancelled from the claim(s). The diffuser comprising formed of different sizes of liquid crystal droplets as claimed in claim 11 must be shown or the feature(s) cancelled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawing will not be held in abeyance.

Response:

Claim 2 is amended and the feature of the photo masks is removed. Fig.7, which is a perspective diagram of an embodiment of the present invention, is added for describing the present invention more precisely. Fig.7 is substantially the same as Fig.3 to 5, which are cross-sectional diagrams of the embodiment of the present invention. No new matter is introduced.

As shown in Fig. 5 and 7, the diffuser 116 including a first region 116A and a second region 116B is clearly pointed out. As mentioned in the paragraphs [0019]-[0023] of the specification, the first region 116A is formed of smaller liquid crystal droplets and has a greater diffusion effect in comparison with the second region 116B. In addition, the first region 116A is substantially closer to the luminous means (light tubes 113) than the second region 116B since the first region 116A is directly above the luminous means 113.

Thus, the Applicant believes that the drawings of the present application have already shown the specified feature(s) in the claims. Meanwhile, the present invention will not doubt become obvious to those of ordinary skill in the art after reading the detailed description of the preferred embodiment and the drawings of the present application. Reconsideration of the drawings of the present application is politely requested.

2. Objection over specification:

The disclosure is objected to because of the following informalities:

Page 4 line 10 'generated form' should be replaced by --generated from--.

Page 4 line 15 'reflective layer 112' should be replaced by --reflective layer 114--.

Page 6 line 4 'embedment' should be replaced by --embodiment--.

Page 6 line 5 'PLDC' should be replaced by --PDLC--.

Appropriate corrections are required.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Response:

The paragraphs [0019] and [0023] in the specification of the present application are amended, as requested by the Examiner. The title of the present application is amended as "Back Light Unit Including a Diffuser with Various Diffusion Effects" for clearly pointing out the specified feature of the present

invention. Reconsideration of the specification of the present application is politely requested.

3. Rejection over claims 1, 2, 4-9 under 35 U.S.C. 103(a) :

Claims 1, 2, 4-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002062528 to Okabe and further in view of U.S. Patent 5,629,785 to Valliath et al. substantially as set forth in Paper No. 3 to 5.

Response:

Claims 1 and 2 are amended by particularly pointing out the feature of the present invention. The newly added portions in the amended claims 1 and 2 are disclosed on paragraphs [0019]-[0023] of the present application. No new matter is introduced.

To show the major differences/non-obviousness, the amended claim 1 is repeated below:

"1. A back light unit disposed under a display panel, the back light unit comprising:

a luminous means as a light source for providing light beams; and

a diffuser interposed between the luminous means and the display panel for diffusing the light beams to the display panel, wherein the diffuser is composed of liquid crystal molecules and polymers and comprises a plurality of regions with different diffusion effects;

wherein a region with greater diffusion effect is closer to the luminous means than that with smaller diffusion effect."

5 In the present invention, a design rule of a diffuser is provided for improving the uniformity of the light output of the diffuser. As mentioned above, the diffuser of the present application has a plurality of regions with different diffusion effects. It is
10 noted that the diffusion effects of each region is designed corresponding to the luminous intensity of the input light beams which have a non-uniform profile due to the shape of the luminous means. For example, since the regions closer to the luminous means have
15 higher luminous intensity, those regions will also have higher diffusion effects to reduce the brightness output through those regions and a more uniform brightness output to the display panel can be made thereby.

20

In Valliath's disclosure, only some materials of the diffuser, such as PDLC, are disclosed. No design rule of the diffuser or something like that can be found in Valliath's invention. Regarding Okabe's invention
25 (JP 2002062528), an anisotropic light diffusion sheet for reducing the non-uniformity of brightness is disclosed. Though the anisotropic light diffusion sheet has regions with different diffusion effects, the regions with high diffusion effects or low
30 diffusion effects are still spread randomly regardless the brightness difference of the input light. In other words, Okabe just discloses a method which increases

the disorder of the diffusion effect of the diffuser to improve the uniformity of output brightness. No design rule or any relationship between the diffusion sheet and the input brightness profile are disclosed or suggested in Okabe's disclosure.

From the aforementioned reasons, the Applicant believes that the amended claim 1 of the present application shows difference/non-obviousness since there is a major difference between the present application and the prior art references. Reconsideration of the amended claim 1 is politely requested.

Claims 2, 4-9 are dependent on the amended claim 1 and should be allowed if the amended claim 1 is allowed. Reconsideration of claims 2, 4-9 is hereby requested.

4. Rejection over claim 10 under 35 U.S.C. 103(a):

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002062528 to Okabe and U.S. Patent 5,629,785 to Valliath et al. and further in view of applicant's admitted prior art substantially as set forth in Paper No. 5 to 6.

Response:

Claim 10 is dependent on the amended claim 1 and should be allowed if the amended claim 1 is allowed. Reconsideration of claim 10 is hereby requested.

5. Rejection over claim 3 under 35 U.S.C. 103(a):

Claim 3 is rejected under 35 U.S.C. 103(a) as being

unpatentable over JP 2002062528 to Okabe and U.S. Patent 5,629,785 to Valliath et al. and further in view of U.S. Patent 5,881,201 to Khanarian substantially as set forth in Paper No. 6 to 7.

5

Response:

Regarding Khanarian's invention, only a relationship between the sizes of the light scattering particles and the angular distribution of the scattered light is disclosed. No design rule of the diffuser can be found in Khanarian's disclosure. Thus, the Applicant believes that the amended claim 1 of the present application shows difference/non-obviousness since there is a major difference between the present application and the prior art references. Claim 3 is dependent on the amended claim 1 and should be allowed if the amended claim 1 is allowed. Reconsideration of claim 10 is hereby requested.

20 **6. Rejection over claim 11-13 under 35 U.S.C. 103(a) :**

Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002062528 to Okabe and U.S. Patent 5,629,785 to Valliath et al. and further in view of U.S. Patent 5,881,201 to Khanarian. substantially as set forth in Paper No. 7.

25

Response:

Claims 11-13 are cancelled.

30

Sincerely,

5

Winston HsuDate: 2/9/2004

Winston Hsu, Patent Agent No. 41,526

P.O. BOX 506

Merrifield, VA 22116

U.S.A.

10 e-mail : winstonhsu@naipo.com.tw

(Please contact me by e-mail if you need a telephone
communication and I will return your call promptly.)